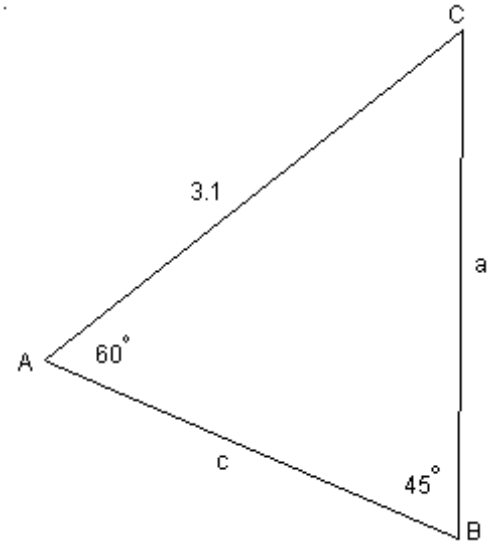
3.8 The Law of Sines

Name_____ Date _____ Period _____

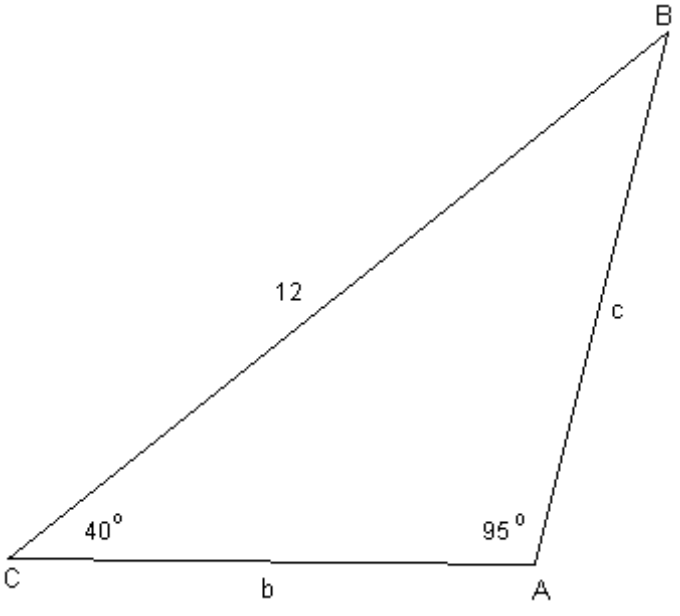
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the triangle. Show work!

1) 1) _____



2) 2) _____



3) A = 40°, B = 30°, b = 10 3) _____

4) A = 33°, B = 70°, b = 7 4) _____

5) A = 32°, a = 17, b = 11 5) _____

6) B = 70°, b = 14, c = 9 6) _____

State whether the given measurements determine zero, one, or two triangles. Show work!

7) A = 36°, a = 2, b = 7 7) _____

8) C = 36°, a = 17, c = 16 8) _____

9) C = 30°, a = 18, c = 9 9) _____

10) B = 82°, b = 17, c = 15 10) _____

Two triangles can be formed using the given measurements. Solve both triangles. Show work!

11) A = 64°, a = 16, b = 17 11) _____

12) C = 68°, a = 19, c = 18 12) _____

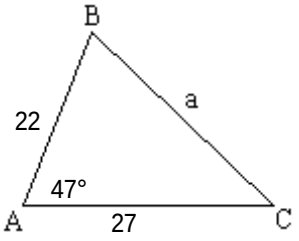
Determine the values of b that will produce the given number of triangles if $a = 10$ and $B = 42°$. Show work!

13) a) two triangles 13) _____

b) one triangle

c) zero triangles

The given measurements may or may not determine a triangle. If not, then state that no triangle is formed. If a triangle is formed, then use the Law of Sines to solve the triangle, if it is possible, or state that the Law of Sines cannot be used. Show work!

14) 

14) _____

15) A = 61°, a = 8, b = 21 15) _____

16) A = 136°, a = 15, b = 28 16) _____

17) B = 42°, c = 18, C = 39° 17) _____

18) C = 75°, b = 49, c = 48 18) _____

19) B = 31°, a = 8, c = 11 19) _____

Solve. Show work!

20) Two markers A and B on the same side of a canyon rim are 56 ft. apart. A third marker C, located across the rim, is positioned so that angle BAC = 72° and angle ABC = 53°. 20) _____

a) Find the distance between C and A.

b) Find the distance between the two canyon rims. (Assume they are parallel.)

21) Two observers are 600 ft. apart on opposite sides of a flagpole. The angles of elevation from the observers to the top of the pole are 19° and 21°. Find the height of the flagpole. 21) _____

22) Two lighthouses A and B are known to be exactly 20 miles apart on a north-south line. A ship's captain at S measures angle ASB to be 33°. A radio operator at B measures angle ABS to be 52°. Find the distance from the ship to each lighthouse. 22) _____